 <p><b>Carnegie Mellon University</b> Environmental Health &amp; Safety FIRE   LAB   WORK</p>	<p><b>Environmental Health and Safety</b> <b>Job Hazard Analysis</b></p>
<p><b>Date of Issuance:</b> September 2019</p>	<p><b>Revision Date:</b></p>
<p><b>Revision Number:</b> Initial</p>	<p><b>Prepared by:</b> EHS</p>

## 1. Introduction

A hazard is the potential for harm. It is often associated with a condition or activity that, if left uncontrolled, can result in an injury or illness.

A job hazard analysis (JHA) is a risk assessment tool used to identify and control workplace hazards.

## 2. Purpose

Many workers are injured and killed at the workplace every day in the United States. Workplace injuries and illnesses can be prevented by studying the workplace operations, identifying and eliminating hazards, establishing proper procedures, and ensuring that all employees are trained properly. One of the best ways to determine and establish proper work procedures is to conduct a job hazard analysis.

## 3. Scope

Supervisors and PIs can use the findings of a job hazard analysis to eliminate and prevent or control hazards in their workplaces. This is likely to result in fewer worker injuries and illnesses; safer, more effective work methods; and increased productivity. The analysis also can be a valuable tool for training new employees in the steps required to perform their jobs safely.

## 4. Where to begin:

- a. Select a job for analysis – It may be helpful to use the following criteria to determine how to prioritize your various job activities.
  - i. Review any past incidents with and without injury.
  - ii. Make a list of hazardous jobs at your organization.
  - iii. List, rank and set priorities based on:
    1. Incident frequency and severity,
    2. Potential for severe injury or illness, and
    3. New or modified jobs that introduce new hazards, or where hazards are unknown

## 5. Steps to be followed

- a. Involve people related to the job

The job hazard analysis must be prepared in collaboration with PIs, supervisors, safety personnel, people working in the lab and if required any other technical experts. Each participant brings a varied perspective which results in a more thorough and supported JHA.

b. Identify the job steps (Job description)

After you select a job, break it down into steps. Brainstorm with all the personnel in order to cover all the key steps to perform the job.

c. Identify the potential hazards for each step

i. Review current tasks and conditions

ii. Identify the hazards at each step: Consider the environmental as well as task-oriented hazards. Commonly-identified hazards in research activities including, but not limited to the following three categories:

1. Agent

Examples: Carcinogenic, teratogenic, corrosive, pyrophoric, toxic, mutagenic, reproductive hazard, explosive, nonionizing radiation, biological hazard/pathogenic, flammable, oxidizing, self-reactive or unstable, potentially explosive, reducing, water reactive, sensitizing, peroxide forming, catalytic, or chemical asphyxiate

2. Condition

Examples: High pressure, low pressure, electrical, uneven surfaces, pinch points, suspended weight, hot surfaces, extreme cold, steam, noise, clutter, magnetic fields, simple asphyxiant, oxygen-deficient spaces, ultraviolet radiation, or laser light

3. Activity

Examples: Creation of secondary products, lifting, chemical mixing, long-term use of dry boxes, repetitive pipetting, scale up, handling waste, transportation of hazardous materials, handling glassware and other sharp objects, heating chemicals, recrystallizations, extractions, or centrifuging

iii. Answer questions such as:

1. What can or has gone wrong?

2. What are the consequences?

3. How could it happen?

4. What are other contributing factors?

5. Is there a fall, trip or slip hazard?

6. Is there a struck by hazard?

7. Can anyone get themselves or get part of their body caught in, under or between?

8. Is there a chance of a rub or abrade to any part of their body?

9. Is there a potential for overexertion?

10. Will they be working near or around moving vehicles?

11. Examine the environment: are there sources of heat radiation, electric current, or toxic, caustic or noxious substances

iv. Brainstorm ideas to eliminate or mitigate hazards

d. Identify ways to eliminate or reduce the hazards and determine preventive measures to protect against hazards. Be specific – do not use generalizations like "Be Careful".

- i. Safer way to do the job
- ii. Changes in equipment:
  - 1. Equipment changes, or engineering controls, are the first choice because they can eliminate the hazard. Examples include machine guards, improved lighting, better ventilation and using a less hazardous product.
- iii. Changes in work processes:
  - 1. Administrative controls, or changes in how the task is done, can be used if engineering controls are not possible. Examples include rotating jobs, changing the steps and training.
- iv. Changes in personal protective equipment:
  - 1. When engineering and administrative controls are not possible or do not adequately protect the workers, use personal protective equipment. Examples include gloves and hearing protection
- v. Brainstorm ideas to eliminate or mitigate hazards


## 6. Nest Steps

- a. Develop a worker-training program
  - i. Train all employees who do the job on the initial JSA and any changes thereafter
  - ii. Make sure they understand the changes
- b. Correct the unsafe conditions and processes
- c. Review and modify the JHAs periodically
  - i. Train all employees who do the job on the initial JSA and any changes thereafter
- ii. Periodically - you may find hazards you missed before
  - iii. When the task or process is changed
  - iv. When injuries or close calls occur when doing the task
- d. Use the job hazard analysis report for
  - i. Training
  - ii. Accident investigation
  - iii. Re-training, safety discussions, etc.

## 7. Revisions

Date	Documented Changes	Initials
09/2019		
11/5/2020	Updated format and accessibility update	MAS

For more information, contact [EHS through email](#) or by calling 412-268-8182.

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JHA# \_\_\_\_\_ Date: \_\_\_\_\_

Job title: \_\_\_\_\_ Task Evaluated: \_\_\_\_\_

Prepared by: \_\_\_\_\_ Reviewed by: \_\_\_\_\_

Approved by:

Supervisor: \_\_\_\_\_ Signature \_\_\_\_\_

Principal investigator/Chairperson/Director: \_\_\_\_\_ Signature \_\_\_\_\_

Environmental Health and Safety Reviewer: \_\_\_\_\_ Signature \_\_\_\_\_

General Description of the work: *(Briefly describe the description of the activity along with the scope and/or limitations (if applicable) that are specific to this job hazard assessment.*

Training Requirements: *(List any specific safety training required for this process).*

Storage and Transport: *(Identify where and how the hazardous material or equipment will be stored or transport).*

Waste Disposal (if applicable): *(Indicate if there are any special waste disposal practices for this process).*

Lab Specific Emergency Procedures: *(Include any special emergency response or spill response required for this process).*

<p align="center"><b><u>Job Description</u></b></p> <p>List the required steps in sequence</p>	<p align="center"><b><u>Hazard Identification</u></b></p> <p>List the potential hazards for the step performed</p>	<p align="center"><b><u>Required Precautions</u></b></p> <p>List the control measures (Engineering, administrative, personal protective equipment or any other controls) required to eliminate or minimize risk of injury</p>